

T18: *Physcomitrella* releases a tetracyclic diterpene into culture medium and atmosphere

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In sterile cell cultures of the moss *Physcomitrella patens* (Hedw.) B.S.G. (Funariaceae) we identified by GC-MS the tetracyclic diterpene 16 α -hydroxykaurane (16 α -hydroxy-*ent*-kaurane, C₂₀H₃₄O, CAS 5524-17-4, mw 290.5).

16 α -hydroxykaurane was found to be a major lipid compound in *P. patens* with an estimated intracellular concentration of up to 0.84 mmol/l. This compound is released into the culture medium where it accumulated to a concentration of 9.3 μ mol/l during 8 days of growth. The overall content of 16 α -hydroxykaurane (mg) produced per culture reached 0.37-fold the content of chlorophyll a+b.

In agar cultures with low air exchange 16 α -hydroxykaurane forms needle-like crystals on tissue and on the inner surface of the culture vessels, indicating that 16 α -hydroxykaurane is also released into the atmosphere from where it can sublime to wax crystals. By solid phase microextraction and gas-chromatography/mass spectrometry the air-bound release of 16 α -hydroxykaurane was confirmed. To our knowledge this is the first report on the release of a plant derived tetracyclic diterpene into the air.